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Examiner's Manual - Driving Knowledge Test



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Examiner's Manual – Driving Knowledge Test

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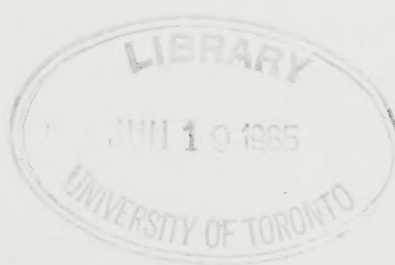
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ABSTRACT

This manual contains all the technical details that are needed to understand how a Driving Knowledge Test was constructed; how the test is to be administered, scored, and interpreted; and how to evaluate the validity and reliability of the test. A separate report "Examiner's Manual - Driving Situations Test" DE-83-03 contains the technical details of the construction of a driving situations test. A third report "Development of Driver Education Tests - Summary Report" DE-83-01 does not repeat all the details given in the manuals but instead gives the general reader an overview of how the tests were developed.

The two tests were designed to be used in evaluating the Ontario Ministry of Transportation and Communications' high school driver education program. One test is a test of knowledge about safe driving; the other is a test of an individual's sensitivity to accident risks in different driving situations.

Both tests meet standards of acceptable validity and reliability as defined by modern testing literature, and by industrial usage. The tests should be useful as intermediate instruments for evaluating driver education.



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DRIVING KNOWLEDGE TEST

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INTRODUCTION

The Driving Knowledge Test was designed to be used in evaluating the Ontario Ministry of Transportation and Communications' revised High School Driver Education programme.

The test has two forms, Form A and Form B. Each form contains 60 multiple choice items.

The items cover the major knowledge criteria for evaluating driver education. These are defined in the Ministry's report, "Revision and Evaluation of Driver Education in Ontario, Phase I: Development of an Evaluation Plan".⁽¹⁾ The criteria, in alphabetical order, are knowledge of:

- alcohol and drug effects
- driving on curves
- defensive driving
- emergency procedures
- lane changing
- hazard detection
- highway/freeway driving
- intersections
- limited visibility/night driving
- merging
- passing
- pedestrians
- right-of-way
- road conditions
- seat belts
- skid control
- stopping
- surveillance
- traffic signs and laws
- turning
- urban driving

The test items have also been independently rated by a panel of experts as being items relevant to safe driving. The test as a whole, has also been validated, and crossvalidated against 675 drivers representing a relatively wide range of driving experience and ability.

The contents of this manual are intended to conform to the American Psychological Association's "Standards for Educational and Psychological Tests and Manuals".⁽²⁾ The following sections of the manual describe:

- How to administer and score the test
- How to interpret scores
- The construction of the test
- Data on the test's validity and reliability
- Norms Table
- Technical notes and auxillary tables (Appendices)

ADMINISTRATION

Qualifications of Examiners

This test can be administered, scored, and interpreted, by persons who normally use tests in education and industry, including driver education classroom instructors. Persons using this test should have a good understanding of the sections in this manual describing the test's reliability and validity.

Administering the Test

1. Self-Administering

The test is self-administered. Have the examinee read the instructions on the front of the test, and then proceed with answering the items using the answer sheet.

2. Two Forms

The test has two forms, A and B. They are equivalent - use either one.

3. Supervision

The test can be administered either individually or to a group under the examiner's supervision.

4. Time

There is no time limit. The test normally takes 20 to 30 minutes to complete.

5. Examinees' Questions

There is only one correct response to each item. Examinees who are doubtful about this should be told to choose the "best" answer. Every item should be answered. Items that are not answered will be scored as incorrect; by the same token, there is no penalty for guessing.

Hand Scoring

Examinees mark their answers on a separate answer sheet which is scored using a template. Before scoring an answer sheet, check for items with multiple responses. Score multiple responses as incorrect unless it is obvious that the examinee made a clerical error. Make sure that you use the correct template.

The examinee's score is simply the total number of correct answers; the maximum score is 60.

Computer Scoring

The test can be scored by computer by using any standard computer answer sheet that is designed for 4-alternative multiple choice items, and has space for 60 items.

INTERPRETATION OF SCORES

There are two ways to interpret the score. Firstly, the test items represent a cross section of topics considered by a panel of experts, to be relevant to safe driving and important in determining the effectiveness of a driver education program. Therefore, the higher a score, the more the examinee knows about safe driving practices.

The second way to interpret a score is to compare it with the norms for professional drivers, nine-point drivers and

driver education students. These norms are shown in the Norms Table at the end of this manual. The table shows separate percentile norms for each form of the test; and similarly, separate norms for professional drivers, nine-point drivers and driver education students.

The professional driver norms represent the scores of drivers whose full-time occupation is driving in a fleet in which drivers must meet and maintain a high standard of safe driving. The nine-point driver norms represent the scores of Ontario drivers who have accumulated nine or more demerit points on their driving records as a result of charges for a variety of traffic offenses. The norms given for the students represent the scores of students at the completion of high school driver education courses based on the text "Power Under Control" and taught in the first and last terms of the 1981-82 school year.

To compare an examinee's score with the norms, first note where it lies on the raw score scale. Then look across the table and read off the corresponding percentiles for professional, nine-point or student drivers. Be sure to read the percentiles for the form of the test, A or B, that the examinee took.

The percentile corresponding to a particular raw score represents the percentage of people in the norms group who obtained less than that score. For example, a raw score of 40 on Form A corresponds to the 1st percentile on the professional scale; to the 35th percentile on the nine-point scale; and to the 72nd percentile on the student scale. This means that the examinee's score of 40 is greater than only 1% of the scores obtained by the professional group. It is greater than scores obtained by 35% of the nine-point drivers, and 72% of the student drivers.

Accuracy of an Individual Score

The score that an individual examinee gets on this test gives a reasonably accurate measure of his or her general level of driving knowledge. However, the score is not an exact measure. If the examinee had taken the test on another day; or if the test had contained more items; or if the test had contained a few slightly different items which the examinee might have "happened" to know the answers to; then the examinee might have obtained a slightly different score. Because of these considerations, an individual score on this test should not be treated as a precise measure of driving knowledge. Instead it should be treated as an approximate measure that is subject to a certain amount of error.

Since a test score is subject to error, it is important to consider an individual's score in light of the amount of error that it might be subject to. The usual way to express this error is by the test's Standard Error (S.E.). The Standard Error of a test is determined by the variability or dispersion of scores that different people in the Norms groups obtained on the test; and by the reliability of the test. When a test has high reliability the Standard Error will be small, and when it has low reliability, the Standard Error will be large.

The Standard Error for this test is generally about three score points. However, its value varies depending on the driver group that the examinee belongs to. See Table VIII in the section on reliability for these different values.

The easiest way to think about the meaning of a Standard Error is as follows: All the scores that an individual might get on the test will have a distribution with a particular mean (usually called the true score), and a standard deviation equal to the Standard Error of the test. This way of thinking about

Standard Error can be used to produce simple rules for dealing with common questions that arise about an individual's score. Here are the rules that will cover most situations:

1. If an individual took both Form A and Form B, the two scores should not differ by more than two S.E.'s, 95% of the time.
2. If two individuals have scores that differ by less than two S.E.'s, there is probably no material difference in their amounts of driving knowledge.
3. If you are using a cutoff score; to classify people into satisfactory versus unsatisfactory for example; and you want to be 95% certain that a person's score represents knowledge exceeding the cutoff score; then you would treat a score as satisfactory only when it exceeds the cutoff score by two S.E.'s.
4. If you want to give a person the benefit of the doubt in the cutoff score situation in Rule 3, you would treat a score as unsatisfactory only if it fell more than two S.E.'s below the cutoff.
5. No matter how an individual score is to be treated, it contains a certain amount of error and the Standard Error gives some guidance about how large the error is likely to be.

CONSTRUCTION OF THE TEST

The majority of the items used to construct the test were selected from a pool of 1,313 items developed by the Highway Safety Research Institute at the University of Michigan.⁽³⁾

Items were either selected from this item pool, or were specifically designed to meet the criteria considered to be important for evaluating driver education as defined in the Introduction to this manual. This process yielded 255 items.

These items were then given to a panel of experts from various segments of the driver education community; high school driver education teachers, commercial driving school instructors, and government and private researchers engaged in traffic safety research. Each expert was asked to read each item and answer two questions about the item. First, they were asked to estimate each item's difficulty using the Angoff⁽⁴⁾ procedure. To do this procedure, the experts were asked to think about a class of 100 minimally qualified driver education students, and to estimate the percentage of students that should be able to get the correct answer to the item. For each item, the experts recorded a percentage from a minimum of 25% to a maximum of 100%. The minimum reflects the fact that each item had only four choices, and if 100 students were simply guessing, we would expect 25% of them to get the item correct by chance alone.

The experts' second task was to estimate, using a five point rating scale, how relevant the item was to safe driving. They used a rating scale where "1" represented "Not Relevant" and "5" represented "Very Relevant".

Items that were considered either not relevant to safe driving or too easy, were dropped from the item pool. Of the remaining items, grammatical changes were made to 19 of them

and one new item on drinking and driving was added.

Two forms of the test were composed from the revised pool of items, each form having 122 items. The items were balanced between the two forms for similarity of content, item difficulty, and relevance to safe driving.

The two experimental forms of the test were administered to three groups of subjects: Professional Drivers, Nine-Point Drivers and Driver Education Students.

The professional drivers were chosen from an organization whose drivers must meet and maintain high standards of proficiency and safe driving, and whose full-time occupation was driving passenger-carrying vehicles. Experienced professional drivers represented the criterion group for safe driving.

Nine-point drivers were people who had just completed an interview with a Driver Improvement Counsellor at one of the Ontario Ministry of Transportation and Communication's Driver Control Centres. These were individuals who had accumulated nine or more demerit points on their driving record. These individuals represented a group of drivers charged with unsafe or illegal driving practices.

The students in the sample were from high school driver education programs sponsored jointly by the Ministry of Education and the Ministry of Transportation and Communications, offered in the school year 1981-82. The course was based on the text "Power Under Control". These particular students were chosen because this test was designed to be used to evaluate a new high school driver education program to be introduced into the high schools in the near future.

Both forms of the test, A and B, were administered to

150 professional drivers, 150 nine-point drivers, and 150 driver education students who had just completed their driver education course. In addition to taking both forms of the test at the end of their course, half of the students had taken Form A at the beginning of their course, and half of the students had taken Form B at the beginning of their course.

Item analyses were performed on the results of the experimental sample of drivers. These analyses were designed to produce two parallel 60 item forms containing altogether the best 120 items from the original item pool. For the item analyses, the professional drivers were defined as the criterion of safe driving knowledge. This meant that, in general, an item would be retained if professionals tended to get the correct answer more often than either students or nine-point drivers. Other considerations used in deciding whether or not to retain an item were that it had acceptable reliability, and that its content would permit parallel forms of the test. The final step in these analyses consisted of interchanging items between the two test forms so that both forms would have very nearly equal validities, reliabilities, and levels of difficulty.

As it turned out, professionals tended to score the highest on any item, students the lowest, and nine-point drivers mid-way between. In other words, there were no items with differential validity such that some items might discriminate between professionals and nine-point drivers, but not between professionals and students; or discriminate between professionals and students, but not between professionals and nine-point drivers.

The two final forms of the test, Form A and Form B, containing 60 items each, were crossvalidated on a new sample of drivers consisting of 75 professionals, 75 nine-point drivers, and 75 students. Subjects were selected for the crossvalidation using the same criteria as the ones used to select subjects for the original experimental sample.

VALIDITY OF THE TEST

One ultimate goal of driver education is to produce drivers who are knowledgeable about safe driving practices. The validity of a test for evaluating driver education depends on its ability to measure knowledge of safe driving practices. Two approaches were used to determine this test's validity; a criterion reference approach and a norms reference approach.

Criterion Referenced Validity

The criterion reference approach has been described in the section on test construction. A panel of experts determined each item's difficulty and relevance to safe driving practices. The test was constructed using items that were rated as the most relevant to safe driving. The content areas covered by the items in the test were also ones that has been previously defined to be of major importance in evaluating driver education.

Results of the analysis of the Angoff procedure for estimating item difficulty gave an expert's assigned passing score for a minimally qualified driver education student. This was obtained by averaging each expert's estimates over the 60 items in a test form; and then averaging the six individual experts' results to get an overall average. The estimated passing score for Form A was 42.2 and for Form B it was 41.0. Reference to the Norms Table shows that for both Form A and Form B, approximately 80% of the students fell below the estimated passing score and almost 50% of the nine-point drivers failed to achieve a passing score. On the other hand, about 98% of the professional drivers obtained a score greater than the estimated passing score for students.

The standard deviation of the experts' assigned passing scores was about five points, which represents a fair amount

of disagreement for an Angoff procedure. However, even if the expert who gave the lowest Angoff passing score was used as the criterion, still only about one-third of the students would have obtained a "passing" score.

Correlations were calculated for each expert's Angoff ratings with those of every other expert. These correlations ranged from 0.203 to 0.566. If the correlations for one particular expert were ignored, the correlations ranged from 0.406 to 0.566. The reason for the one expert's low correlations with the other experts appeared to be that this expert's ratings were restricted to a quite narrow range of values, which in turn produced relatively low correlations with the other experts.

The experts' Angoff estimates were also correlated with drivers' scores on individual items to see if the experts' estimates of the levels of difficulty of individual items agreed with the levels of item difficulty actually found for the experimental subjects. Table I shows the correlations of the experts' estimates with the proportions of correct answers given by the three driver groups. The Table also contains the correlations among the driver groups. Table I is on the next page.

The correlations between the Angoff ratings and actual levels of item difficulties found for the three driver groups shows that the experts' ratings were positively correlated with actual levels of difficulty. The Angoff correlations were substantially higher for Form A than for Form B. However, there was nothing in the data to suggest why the correlations should be higher for Form A than for Form B. On the other hand, there was no attempt to construct the two forms to be equivalent in terms of expert's Angoff ratings. The forms were constructed to be equivalent in terms of reliability and validity.

TABLE I

Correlation Matrix for Form A and Form B

(Angoff; % correct on each item)

Form A				
	Angoff	Student	Professional	Nine-point
Angoff	1	.714	.823	.717
Student	.714	1	.876	.891
Professional	.823	.876	1	.926
Nine-point	.716	.891	.927	1

Form B				
	Angoff	Student	Professional	Nine-point
Angoff	1	.450	.416	.472
Student	.449	1	.851	.863
Professional	.416	.851	1	.920
Nine-point	.472	.863	.920	1

The correlations among driver groups in Table I show that item difficulties relative to the test as a whole were very similar for all three driver groups. That is, for example, if an item was difficult for the students, it would also be relatively difficult for the nine-point drivers and for the professionals.

Correlations were also calculated to see how well the experts agreed with one another on their relevance ratings. These correlations ranged from -0.28 to 0.55. Two of the experts gave either a four or a five rating to virtually every item, and this narrow range of rating values caused their

apparent disagreement with the other experts. The average relevance rating of all items across all experts was 3.90. In addition, just over 90% of all of the ratings were equal to three or greater. In no case did an expert give an item a rating of one. Thus, while the experts did not show particularly high agreement in the exact degree of relevance of any one item, they agreed that the items were all generally relevant to safe driving.

Norms Referenced Validity

Validity from the norms reference approach is the extent to which the test predicts professional driver status, where professional drivers represent the criterion for knowledgeable safe drivers.

Data in the Norms Table show that professionals generally score well above the average of either the nine-point or student groups. The means and standard deviations for the professional, nine-point, and student scores are shown in Table II. (next page)

Data in Table II and in the Norms Table are based on the combined scores for both the experimental and crossvalidation administrations of the test. Each mean and related standard deviation represents the number of correct answers to the 60 items contained in each form of the test.

Another indication of the differences between professional and non-professional drivers^{*} is the degree of overlap between

* Throughout the manual, the term "non-professional drivers" represents the combined samples of students and nine-point drivers and is not meant to imply a cross-section of all non-professional drivers.

the score distributions. Inspection of the percentiles in the Norms Table will show that on both forms, about 70% of the professionals score higher than about 70% of the nine-point drivers; and about 90% of the professionals score higher than 90% of the students. In other words, there is very little overlap between the professional and non-professional groups.

TABLE II
Means and Standard Deviations

	Form A	Form B
Professional		
Mean	48.53	49.42
S.D.	3.80	4.26
N	225	225
Nine-point		
Mean	42.58	43.50
S.D.	6.85	7.48
N	225	225
Students		
Mean	35.95	34.25
S.D.	6.91	8.31
N	225	225

Validity coefficients were calculated to determine, firstly, how well the test discriminated between the professional and the other driver groups; and secondly, to determine the cross-validation stability of the validities found with the experimental samples.

Table III shows the validity coefficients calculated for the experimental, crossvalidation and combined samples for discriminating between professionals and students; and not including the nine-point drivers. These validity values are most relevant to the problem of evaluating driver education programmes: the problem this test was originally designed to address.

TABLE III
Professional - Student Validities

	N	Form A	Form B
Experimental	300	.7591	.7629
Crossvalidation	150	.7209	.7432
Combined	450	.7497	.7580

Table IV shows validities for discriminating professionals from nine-point drivers.

TABLE IV
Professional - Nine-point Validities

	N	Form A	Form B
Experimental	300	.481	.437
Crossvalidation	150	.449	.429
Combined	450	.471	.434

The professional versus non-professional validity coefficients, means and their associated standard deviations for the experimental, crossvalidation and combined samples, for both forms of the test are shown in Table V on the next page.

TABLE V

Professional - Non-professional Validities

	N	Validity	Mean	S.D.
<u>Form A</u>				
Experimental	450	.5632	42.25	8.02
Crossvalidation	225	.5305	42.56	7.72
Combined	675	.5552	42.33	7.95
<u>Form B</u>				
Experimental	450	.5490	42.25	9.55
Crossvalidation	225	.5293	42.69	8.84
Combined	675	.5441	42.36	9.38

The validities shown in Tables III through V are all statistically significant at at least the 0.001 level. In addition there are no significant differences between the respective validities given for the two forms of the test.

As can be seen in Tables III to V there was very little shrinkage in the validity values going from the experimental samples to the crossvalidation samples. Therefore, the results for the two samples have been combined. If one prefers to be conservative, though it would make very little material difference, the crossvalidation values can be used as the validity estimates.

The validity of a test may sometimes be diluted because its scores may be correlated with age of the subjects. The average age of the professional and nine-point drivers was higher than the average age of the students. To investigate this possibility, scores of professional, nine-point drivers

and students were compared on age. The results of a multiple regression analysis showed no significant effects of age on test scores.

As a general note on validity; validities given in a test manual are always specific to the samples of persons who served as experimental test subjects. The technical notes at the end of this manual give a variety of data about the characteristics of the drivers who served as test subjects here. Users of this test should look at these notes if the test is to be used on populations other than the ones mentioned in this manual. Finally, normative data given in a manual provide guidance, but they are no substitute for data that the test user should collect to provide his or her own local norms.

RELIABILITY OF THE TEST

The internal consistency of the test was measured by using the Spearman-Brown odd-even split-half reliability formula. The correlations are given for the experimental, crossvalidation, and combined samples.

TABLE VI

Split-half Reliabilities

	N	Form A	Form B
Experimental	450	.8523	.8889
Crossvalidation	225	.8375	.8668
Combined	675	.8486	.8883

These reliabilities are somewhat low. However, high reliability coefficients would be unlikely in a test with such high validity coefficients. The high validities also mean that the standard deviations for different driver groups are

quite small, which in turn yeilds quite small standard errors for the different groups. This more than compensates for the lower reliabilities.⁽⁵⁾

Another form of reliability is how well the scores on the two forms of the test correlate with each other. Once again, the correlations are given for the experimental, crossvalidation and combined samples.

TABLE VII
Correlations between Test Forms

	N	Correlation
Experimental	450	.7810
Crossvalidation	225	.7732
Combined	675	.7784

All correlations presented in the tables are significant beyond the 0.001 level. The correlations between the two forms of the test are slightly lower than the reliabilities of either form by itself. This means that the two forms are not exactly parallel. However, calculation of the reliability of a score obtained by averaging the results of taking both forms of the test will show that the reliability of both forms is almost exactly the same as either form by itself. This, along with the fact that both forms have the same validity, indicates that the two forms are equivalent measures; and that there is nothing to gain by giving an examinee both forms of the test.

As mentioned in the section on interpreting scores, the Standard Error of either form of the test is about three points. However, the Standard Error varies slightly for different groups. Table VIII gives the value of the Standard Error for each driver group. (next page)

TABLE VIII

Standard Error for Different Driver Groups

	N	Form A	Form B
Professional	225	2.01	1.99
Nine-point	225	3.62	3.50
Student	225	3.65	3.89

The differences among the Standard Errors for the different groups are primarily due to the fact that the Standard Error typically depends on the level of the score: it will generally be small for high scores, for example, the professional group, and larger for low scores, for example, the student group.⁽⁵⁾

ADDITIONAL DATA

Correlation with a Risk Test

This test was developed in conjunction with a test of perceptions of driving risks; the "Driving Situations Test". All the drivers in the experimental and the crossvalidation samples took both this knowledge test and the risk test. The overall correlation between scores on the knowledge test and scores on the risk test was; for Form A, -0.380, and for Form B, -0.377. There was no evidence that there were any differences among the groups. The negative correlations result from the fact that high knowledge scores tend to correspond to low risk taking, and vice versa.

The correlations, while not meant to imply evidence for the validity of either test, suggest that there is a moderate and significant relationship between the tendency to perceive risk in various driving situations, and knowledge of safe driving.

Two Administrations of the Test

As mentioned in the section on the construction of the test, driver education students in the experimental group wrote the test twice. All of the students took both forms of the test at the end of their course and 55 students took Form A at the beginning of their course and 48 students took Form B at the beginning of their course.

The average percent of items correct and the standard deviation for both administrations of the test are presented in Table IX.

TABLE IX
Pre- and Post-course Test
Means and Standard Deviations

	<u>Form A</u>			<u>Form B</u>		
	N	Mean % Correct	S.D.	N	Mean % Correct	S.D.
Pre-course Administration	55	53.73	7.52	48	54.84	6.93
Post-course Administration	55	58.72	10.91	48	58.63	11.73

A paired t-test of the difference between the pre-course and post-course mean scores gave a value of 4.30 for Form A, and a value of 2.62 for Form B. Both of these values are significant beyond the 0.01 level. Although the driver education students had already passed the written examination for an "L" licence, or were in the process of obtaining one at the beginning of their course, there was about a 5% improvement in their scores on the test at the end of the driver education programme. This improvement could reflect an actual increase in knowledge or it could reflect previous experience with the same test.

NORMS TABLE

PERCENTILES

<u>FORM A</u>				<u>FORM B</u>		
Raw Score	Professional Driver	Nine-Point Driver	Student Driver	Professional Driver	Nine-Point Driver	Student Driver
60					99	
59				99	98	
58		99		98	97	
57	99	98		96	96	
56	98	98		94	95	
55	96	97		91	94	
54	93	95		86	92	
53	88	94		80	90	99
52	82	92		73	87	98
51	74	89	99	64	84	98
50	65	86	98	55	81	97
49	55	83	97	46	77	96
48	44	79	96	37	73	95
47	34	74	95	28	68	94
46	25	69	93	21	63	92
45	18	64	90	15	58	90
44	12	58	88	10	53	88
43	7	52	85	7	47	85
42	4	47	81	4	42	82
41	2	41	77	2	37	79
40	1	35	72	1	32	76
39		30	67		27	72
38		25	62		23	67
37		21	56		19	63
36		17	50		16	58
35		13	45		13	54
34		11	39		10	49
33		8	33		8	44
32		6	28		6	39
31		5	24		5	35
30		3	19		4	30
29		2	16		3	26
28		2	12		2	23
27		1	10		1	19
26			7			16
25			6			13
24			4			11
23			3			9
22			2			7
21			2			6
20			1			4
19						3
18						3
17						2
16						1

REFERENCES

- 1) Bragg, B.W.E. Revision and Evaluation of Driver Education in Ontario: Phase 1: Development of an Evaluation Plan, Ministry of Transportation and Communications: Toronto, Ontario: September, 1980.
- 2) Standards for Educational and Psychological Tests and Manuals, American Psychological Association: Washington, D.C.: 1966.
- 3) Pollock, William T. and McDole, T.C. Handbook for Driving Knowledge Testing, Highway Research Institute, The University of Michigan, Ann Arbor, Michigan: August 1974. Report No. HSRI - 001590 - 3.
- 4) Angoff, W.H. Scales, norms, and equivalent scores. In R.L. Thorndike (Ed.) Educational Measurement. Washington, D.C.: American Council on Education, 1971, 514-515.
- 5) Cronbach, Lee J. Essentials of Psychological Testing. Third Edition, Harper & Row: New York: 1970.

A P P E N D I X A

Correct Answers for
Form A and Form B

1. a b ☒ c d
2. a b ☒ c d
3. a ☒ b c d
4. a b c ☒ d
5. a ☒ b c d
6. a b ☒ c d
7. a b ☒ c d
8. a ☒ b c d

9. ☒ a b c d
10. a b ☒ c d
11. a ☒ b c d
12. ☒ a b c d
13. a b ☒ c d
14. a ☒ b c d
15. ☒ a b c d
16. a b ☒ c d

17. a b ☒ c d
18. a ☒ b c d
19. a ☒ b c d
20. a b ☒ c d
21. a b c ☒ d
22. a ☒ b c d
23. ☒ a b c d
24. a b ☒ c d

25. a ☒ b c d
26. a b c ☒ d
27. ☒ a b c d
28. a ☒ b c d
29. a b ☒ c d
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31. ☒ a b c d
32. a b ☒ c d
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34. a ☒ b c d
35. a b c ☒ d
36. a ☒ b c d
37. a b c ☒ d
38. a b c ☒ d
39. ☒ a b c d
40. a ☒ b c d
41. a b ☒ c d

42. a ☒ b c d
43. a ☒ b c d
44. ☒ a b c d
45. a ☒ b c d
46. a b c ☒ d
47. a b c ☒ d
48. a b c ☒ d
49. a b ☒ c d
50. a ☒ b c d
51. a b ☒ c d
52. a ☒ b c d
53. a b c ☒ d
54. a b c ☒ d
55. a b ☒ c d
56. a b ☒ c d
57. a b ☒ c d
58. a b c ☒ d
59. a b ☒ c d
60. ☒ a b c d

1. a b ☒ c d
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5. a b ☒ c d
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8. a b c ☒ d

9. a b ☒ c d
10. a b ☒ c d
11. a b c ☒ d
12. ☒ a b c d
13. a b ☒ c d
14. ☒ a b c d
15. ☒ a b c d

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19. a b ☒ c d
20. a ☒ b c d
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23. a b c ☒ d

24. a b c ☒ d
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27. a b ☒ c d
28. a b ☒ c d
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31. a ☒ b c d
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42. ☒ a b c d
43. a b ☒ c d
44. a b c ☒ d
45. a ☒ b c d

46. ☒ a b c d
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49. a b ☒ c d
50. ☒ a b c d
51. a b ☒ c d
52. a ☒ b c d
53. a b ☒ c d

54. a ☒ b c d
55. a b ☒ c d
56. ☒ a b c d
57. ☒ a b c d
58. a b ☒ c d
59. a b c ☒ d
60. ☒ a b c d

A P P E N D I X B

Demographic Characteristics of Samples

COMBINED SAMPLE CHARACTERISTICS

	Nine-point	Students	Professional
Sex			
Male	92%	46%	100%
Female	8%	54%	
Age			
Mean (S.D.)	29 (11)	16.5 (3.4)	41 (9)
Education			
Mode	12	11	11
Taken Driver Education?			
At High School	44%	100%	0
Commercial Driving School	10%	0	0
Defensive Driving	14%	0	100%
None	32%	0	0
How Long Licenced?			
less than 1 year	1%	99%	0
1 - 3 years	20%	1%	0
4 - 7 years	31%		4%
8 - 15 years	24%		27%
15 or more years	24%		69%
Type of Vehicle Driven			
Car	82%	96%	
Truck (less than 1 ton)	10%	3%	
Truck (more than 1 ton)	7%	1%	
Other	1%	0	100%
Km. Driven per year			
less than 8000	10%	0	3%
8000 - 24000	42%	0	8%
24000 - 50000	29%	0	31%
more than 50000	19%	0	58%
Type of Driving			
for work/getting to work	80%	0	90%
for pleasure	20%	0	10%

	Nine-point	Students	Professional
Violations in past 3 years			
none	0	99%	70%
some	100%	1%	30%
total number reported	288	2	74
Accidents in past 3 years			
none	57%	97%	60%
some	43%	3%	40%
total number reported	100	4	94
Licence ever been suspended			
No	81%	0	98%
Yes	19%	0	2%
Average length of time(months)	3	0	3

A P P E N D I X C

Item Difficulties
Form A and Form B

FORM A

PERCENT OF ITEMS CORRECT, BY GROUP

S = Student

P = Professional

N = Nine-Point

	S	P	N		S	P	N
1.	48.2	84.6	64.1	31.	29.3	68.7	48.7
2.	52.0	81.3	71.3	32.	38.9	60.7	57.3
3.	62.7	93.3	80.7	33.	64.0	72.2	59.9
4.	87.3	96.7	90.0	34.	62.0	85.3	66.0
5.	54.0	80.0	67.3	35.	28.4	47.3	38.7
6.	61.1	84.7	83.3	36.	63.8	87.3	83.9
7.	37.3	64.7	52.7	37.	75.8	91.3	88.0
8.	45.3	65.8	47.3	38.	14.2	63.3	42.7
9.	57.3	88.0	79.9	39.	72.5	93.3	89.3
10.	57.7	84.1	88.5	40.	12.4	55.7	32.0
11.	86.7	98.7	97.3	41.	33.6	70.7	56.4
12.	88.0	99.3	94.7	42.	74.0	99.3	91.3
13.	85.2	99.3	88.0	43.	33.3	60.7	49.7
14.	85.3	98.0	93.3	44.	56.0	82.0	59.6
15.	89.3	98.7	94.7	45.	37.3	53.3	45.0
16.	38.2	63.8	49.7	46.	90.0	99.3	97.3
17.	47.3	72.7	62.7	47.	93.3	96.7	86.7
18.	53.7	78.0	56.0	48.	58.0	84.7	69.3
19.	88.6	94.0	81.9	49.	34.0	64.7	51.0
20.	86.6	94.7	88.6	50.	87.3	100	92.7
21.	74.7	90.7	87.3	51.	47.7	69.0	45.6
22.	57.4	74.0	66.4	52.	84.0	98.7	93.3
23.	15.3	33.3	20.0	53.	76.7	94.7	87.3
24.	68.0	82.7	68.7	54.	79.9	90.0	81.8
25.	77.2	90.7	84.6	55.	86.7	100	94.6
26.	66.4	86.0	74.5	56.	40.0	59.3	51.7
27.	82.7	98.0	90.7	57.	41.3	96.7	79.3
28.	68.5	88.1	84.5	58.	37.4	59.9	46.6
29.	64.0	78.7	74.5	59.	48.0	62.0	41.9
30.	71.8	98.0	86.0	60.	40.1	41.1	37.9

FORM B

PERCENT OF ITEMS CORRECT, BY GROUP

S = Student

P = Professional

N = Nine-Point

	S	P	N		S	P	N
1.	47.3	80.4	71.6	31.	36.7	68.9	50.0
2.	46.7	84.0	63.8	32.	81.3	98.0	96.0
3.	59.3	81.2	73.0	33.	26.0	69.5	59.1
4.	89.3	100	91.9	34.	38.7	63.3	54.1
5.	54.7	85.2	69.8	35.	55.0	84.1	83.9
6.	69.3	90.0	77.2	36.	48.0	75.3	70.9
7.	26.7	61.3	48.3	37.	61.3	84.8	80.4
8.	60.1	80.0	64.4	38.	35.3	70.9	55.1
9.	61.3	80.7	71.8	39.	19.7	55.0	42.6
10.	73.3	94.0	81.9	40.	42.7	75.5	72.5
11.	48.0	76.7	77.2	41.	51.3	69.5	59.6
12.	34.2	57.6	49.7	42.	75.3	92.7	74.5
13.	39.3	57.0	37.6	43.	31.5	92.7	69.8
14.	72.7	98.0	93.3	44.	54.7	95.4	79.7
15.	78.7	96.7	91.3	45.	62.7	97.4	76.2
16.	48.0	74.2	54.1	46.	77.2	98.7	99.3
17.	82.0	99.3	98.0	47.	51.3	74.2	68.2
18.	78.0	96.0	92.6	48.	26.0	52.3	54.4
19.	56.7	78.1	69.4	49.	72.7	89.4	81.1
20.	72.0	96.7	86.6	50.	70.0	86.8	73.6
21.	68.0	90.1	84.6	51.	60.7	82.8	75.0
22.	44.0	80.8	70.7	52.	68.7	90.7	80.5
23.	76.7	92.7	92.6	53.	80.0	95.4	84.6
24.	29.5	73.0	56.4	54.	35.1	54.7	44.5
25.	50.7	90.7	80.5	55.	62.0	86.7	76.4
26.	47.3	78.7	69.8	56.	86.7	98.7	97.3
27.	68.7	96.0	90.6	57.	87.2	94.7	82.6
28.	58.4	89.3	79.9	58.	57.3	76.2	65.8
29.	52.7	79.5	66.2	59.	27.5	60.9	49.3
30.	56.0	76.2	75.0	60.	56.4	94.7	83.1

APPENDIX D

Driving Knowledge Test

DRIVING KNOWLEDGE TEST

FORM A

Your Name: (Please Print) _____

INSTRUCTIONS: Please draw an "X" over the answer that you consider to be the most correct. The answer spaces are numbered the same as the items in the booklet. Mark one answer only for each question. (You may detach this answer sheet from the booklet.)

Example:

1. If you are driving on a two-way street and you hear the siren of an emergency vehicle, you must:
- a) Speed up and get out of the way.
 - b) Signal the driver of the vehicle to pass.
 - c) Stop immediately and then signal the driver to pass.
 - d) Pull to the right as far as possible and stop.

The correct answer is shown below:

1. a b c ~~d~~

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

16. a b c d

Please Turn Over ...

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

26. a b c d

27. a b c d

28. a b c d

29. a b c d

30. a b c d

31. a b c d

32. a b c d

33. a b c d

34. a b c d

35. a b c d

36. a b c d

37. a b c d

38. a b c d

39. a b c d

40. a b c d

41. a b c d

42. a b c d

43. a b c d

44. a b c d

45. a b c d

46. a b c d

47. a b c d

48. a b c d

49. a b c d

50. a b c d

51. a b c d

52. a b c d

53. a b c d

54. a b c d

55. a b c d

56. a b c d

57. a b c d

58. a b c d

59. a b c d

60. a b c d

Thank you.

1. The vehicle that is least likely to turn in front of you is one that:
 - a) Has its left turn signals on.
 - b) Turns its wheels toward you.
 - c) Stops near the curb or shoulder.
 - d) Begins to slow down.
2. When driving past exits on a freeway you should be most careful of:
 - a) Vehicles in the passing lane because they may slow down.
 - b) Vehicles behind you because they may speed up.
 - c) Exiting vehicles because they may cut back onto the freeway.
 - d) Vehicles slowing down or stopping on the freeway exit.
3. If your vehicle becomes disabled during a fog it is most important to:
 - a) Turn on all your lights.
 - b) Pull as far off the road as possible.
 - c) Sit in the vehicle and wait for help.
 - d) Tie a white cloth on the vehicle and open the hood.
4. If you feel drowsy or fatigued while driving you should:
 - a) Speed up to reach your destination faster.
 - b) Take wake-up drugs.
 - c) Open the windows and turn on the radio.
 - d) Pull off the road.
5. The first time you need to check the traffic lights ahead of you is when you:
 - a) Are within 15 meters (50 feet) of the lights.
 - b) Are a block or more away from the lights.
 - c) Are 2 seconds from the intersection.
 - d) See the vehicle in front of you begin to slow down.
6. When turning left at an intersection:
 - a) You have the right-of-way over oncoming traffic.
 - b) You should blow your horn and proceed with caution.
 - c) Check cross traffic from both directions.
 - d) Pull halfway into the intersection and edge into cross traffic.
7. If after signalling for a turn in an intersection you decide you don't want to turn:
 - a) Turn off the signal and do not turn.
 - b) Stop where you would have normally begun the turn, then go straight.
 - c) Complete the turn anyway.
 - d) Speed up, change lanes, if necessary, and go straight ahead.
8. If you want to turn left at an intersection and there is oncoming traffic, do not:
 - a) Proceed to the centre of the intersection.
 - b) Move to the left of the centre lane.
 - c) Keep your wheels pointed straight ahead.
 - d) Keep your foot firmly on the brake.
9. If at an intersection you see a vehicle coming from the left you should:
 - a) Prepare to stop and yield the right-of-way if necessary.
 - b) Continue at the same speed, since you have the right-of-way.
 - c) Speed up to get through the intersection.
 - d) Move as far to the right as possible and maintain your speed.
10. If it looks like you might hit a pedestrian and you notice a vehicle close behind you:
 - a) Blow your horn to warn others, then steer for the sidewalk.
 - b) Turn off the engine and roll into the person.
 - c) Stop short even if you will be hit from behind.
 - d) Try to hit the person with the side of the vehicle.
11. If a traffic signal changes while a pedestrian is still in the street:
 - a) Vehicles making turns have the right-of-way.
 - b) The pedestrian has the right-of-way.
 - c) Vehicles coming from the right have the right-of-way.
 - d) Vehicles coming from the left have the right-of-way.
12. If a person crosses the street in the middle of the block in front of you:
 - a) Slow down and be prepared to stop.
 - b) Blow your horn and proceed.
 - c) Change lanes to get by him or her.
 - d) Continue at the same speed since he/she must get out of the way.
13. If you are about to pass a streetcar on the right and it stops to let off passengers, you should:
 - a) Come to a stop when you get alongside of it.
 - b) Come to a stop only if its doors are opened.
 - c) Stop 2 meters (6 feet) behind the rear door if the streetcar is not in a safety zone.
 - d) Slow down but not come to a complete stop.
14. If you are driving at night in a city and there are no speed limit signs:
 - a) Drive no faster than 20 km/h (15 mph).
 - b) Drive no faster than 50 km/h (30 mph).
 - c) Drive no faster than 60 km/h (40 mph).
 - d) Drive no faster than 70 km/h (45 mph).
15. It is legal to use someone else's vehicle:
 - a) Only with the owner's consent.
 - b) If you are a friend of the owner.
 - c) Without the owner's consent in an emergency.
 - d) If you have used the vehicle before.
16. If you must move a person injured in an accident:
 - a) Get his name and address first.
 - b) Move him only in a sitting position.
 - c) Mark the spot where he was lying.
 - d) First try to set any broken bones.

17. You may cross a median of a divided highway:
- Under no conditions.
 - Only in emergencies.
 - At designated cross-overs unless legally prohibited.
 - If you miss your exit and want to turn around.
18. The closest you may park to a fire hydrant is:
- 1½ meters (5 feet).
 - 3 meters (10 feet).
 - 4½ meters (15 feet).
 - 8 meters (25 feet).
19. When approaching an intersection where a traffic signal light is red and a police officer motions you to go through, you should:
- Wait for the light to turn green.
 - Obey the officer's signal and go through at once.
 - Call the officer's attention to the red light.
 - Stop to make sure he/she wants you to go through.
20. When travelling on a highway, the driver of a motor vehicle is not permitted to carry in a house or boat trailer:
- Firearms.
 - Inflammable material.
 - Persons.
 - Pets.
21. When backing up you should assume that:
- You have the right-of-way if you have signalled.
 - You can see everything behind you by using your mirrors.
 - It is easier to steer your vehicle than when going forward.
 - Pedestrians may not notice that you are backing up.
22. When backing up:
- Apply less pressure on the brakes to stop than when moving forward.
 - Allow for greater stopping distance than when travelling forward.
 - Pump the brakes lightly to stop.
 - Hold the steering wheel near the bottom for better steering control.
23. The last thing to check just before turning right at a street intersection is:
- Your right blind spot.
 - Traffic from the left.
 - Traffic from the right.
 - Oncoming traffic.
24. When making a right turn you should always:
- Signal several blocks before the turn.
 - Drive as fast as traffic permits.
 - Check the road that you are turning onto for vehicles and pedestrians.
 - Stop and check traffic before turning.
25. The best way to tell whether you are permitted to pass other vehicles is to see if:
- There is a green flashing light.
 - There are solid or broken lane markings.
 - The vehicle ahead signals that it is OK to pass.
 - The road ahead is straight.
26. When it is safe to do so, you are permitted to pass other vehicles on the right:
- On any street or highway.
 - Only when it is possible to do so by driving on the shoulder of the road.
 - It is never permitted.
 - When the street or highway has two or more lanes for traffic in the direction you are travelling.
27. On a 2-lane road you should pass only when:
- There is enough room to return safely to your lane after the pass.
 - There is a solid line to the left of your lane.
 - The vehicle ahead signals you to pass.
 - The vehicle ahead of you is going more than 20 km/h (15 mph) below the speed limit.
28. When preparing to leave a freeway you should:
- Speed up before changing lanes.
 - Look for the exit and deceleration lane.
 - Drive in the middle lane as long as possible.
 - Slow down before entering the deceleration lane.
29. If your freeway exit has a deceleration lane you should:
- Slow down as much as possible on the main road before entering the deceleration lane.
 - Drive alongside and pull in front of slower moving traffic in the deceleration lane.
 - Move into the deceleration lane as soon as possible.
 - Keep your speed constant once you enter the deceleration lane.
30. When driving on an entrance to a freeway:
- Stay as close as possible to the vehicle in front of you.
 - Watch for signs warning you to slow down or yield.
 - Go faster if there is a lot of traffic behind you.
 - Drive with your left wheels on the shoulder to get a better view of the freeway.
31. When on a short freeway entrance it is most important to:
- Check ahead for vehicles that may be slowing down or stopping.
 - Speed up as much as possible before coming to the end of the entrance.
 - Stop at the end of the entrance before moving onto the freeway.
 - Turn on your signal lights as soon as you start down the entrance.
32. When driving through a curve you should:
- Keep your brakes slightly applied.
 - Stay as far to the left as possible.
 - Look well ahead to where you are going.
 - Put on your turn signals.

33. Most automobile skids are the result of:
- Under-inflated tires.
 - Snow or ice on the road.
 - Driving too fast.
 - Over-inflated tires.
34. When coming out of a skid on a slippery road you should apply your brakes:
- In a series of quick hard jabs.
 - In a series of firm gentle pumping motions.
 - By using increasing pressure until you stop.
 - By using constant pressure until you stop.
35. If you must make an emergency stop on snow and you start to skid you should:
- Turn off the engine.
 - Shift into neutral.
 - Apply more pressure on the brake.
 - Drive into a snow drift.
36. To avoid spinning the tires on a slippery surface you should:
- Alternately use the brake and gas.
 - Increase speed slowly.
 - Shift from drive to neutral.
 - Start in second gear with fast but steady power.
37. The amount you turn your steering wheel in making a turn depends mostly on:
- Whether or not you have power steering.
 - Whether the road is dry or wet.
 - The condition of your tires.
 - How sharp the turn is.
38. To start moving forward on an icy slippery surface you should start in:
- 3rd gear and accelerate slowly.
 - 1st gear and let out the clutch slowly.
 - Neutral and shift into 1st gear while slowly accelerating.
 - 2nd gear and let out the clutch very slowly.
39. When driving on icy roads you should:
- Slow down when coming to intersections.
 - Drive with one foot on the brake.
 - Keep your brakes on when driving down hills.
 - Drive in the left rather than right lane.
40. A paved road surface tends to be more slippery:
- On a straight section.
 - Before an intersection.
 - On a curve.
 - In the country.
41. If your brakes fail completely you should:
- Press the brake all the way down, shift into neutral, and apply the parking brake.
 - Apply the parking brake, turn off the engine, and shift into park.
 - Pump the brake, slowly apply the parking brake, and shift into a lower gear.
 - Shift into neutral, turn off the engine, and slowly apply the parking brake.
42. When your right wheels run onto a soft shoulder the best way to get back on the road is:
- Apply brakes.
 - Reduce speed by taking your foot off the gas pedal, turn back when the way is clear.
 - Steer hard to the left.
 - Apply the brakes and steer hard to the left.
43. If your brakes begin to fade when going down a steep hill you should:
- Put your vehicle in neutral and coast to a stop.
 - Pull off the road if possible and let the brakes cool off.
 - Drive in a zig-zag manner to reduce speed.
 - Shut off the engine and use the parking brake.
44. If a vehicle is heading toward you in your lane you should attempt an emergency stop:
- Only if there is enough room to stop and you cannot pull off the road.
 - Only if the oncoming driver does not seem to see you.
 - When the traffic behind you is 10 or more vehicles away.
 - When the road is wet or the weather makes it hard to see.
45. When you must leave the road to avoid a head-on crash:
- Apply the brakes hard before leaving the road.
 - Turn your wheels as gradually as possible.
 - Keep your brakes on until after you cross the edge of the shoulder.
 - Try to spin the back of your vehicle around.
46. When about to go down a steep long hill:
- Shift into neutral.
 - Turn on your headlights or blow your horn.
 - Tighten your seat belt and sit well back on your seat.
 - Test your brakes and shift into a lower gear.
47. If an oncoming vehicle refuses to dim its lights at night it is best to:
- Speed up to get by him quickly.
 - Leave your headlights on high beam.
 - Brake, to warn drivers behind you.
 - Keep your eyes to the right.
48. If the vehicle in front of you slows down you should not:
- Give a hand signal.
 - Take your foot off the gas pedal.
 - Tap the brake lightly to warn drivers behind you.
 - Signal other drivers to pass.

49. If your defroster breaks during freezing rain or snow, it is best to:
- a) Use your hand to clean the windows.
 - b) Turn on your windshield washers.
 - c) Pull off the road and turn on the heater.
 - d) Open several of the side windows.
50. If you are in a "No Passing" zone and you are behind a slow moving vehicle you should:
- a) Begin to pass the vehicle when you are near the end of a "No Passing" zone.
 - b) Wait until you are out of the "No Passing" zone before beginning to pass.
 - c) Use the shoulder in order to pass the vehicle.
 - d) Signal the vehicle to move onto the shoulder so you can pass.
51. Storing heavy items in the trunk of your car:
- a) Increases traction.
 - b) Reduces impact in rear-end collisions.
 - c) Increases fuel consumption.
 - d) Reduces sway in high wind conditions.
52. Seat belts properly worn will:
- a) Prevent accidents.
 - b) Reduce the risk of injury.
 - c) Keep you from moving your body.
 - d) Trap you in the vehicle.
53. If there are children under 2 years old in your vehicle they should:
- a) Wear one of the regular seat belts and shoulder harnesses.
 - b) Be allowed to stand on the rear seat if watched by an adult.
 - c) Can be held by an older passenger.
 - d) Be put in a car seat.
54. When you see this sign you should:
- a) Stop and yield the right-of-way to the vehicle on your left.
 - b) Slow down and proceed if you are the first vehicle to arrive at the intersection.
 - c) Stop only if there are any vehicles arriving at the cross street.
 - d) Stop and yield the right-of-way to the vehicle stopped on your right.
- The image shows two traffic signs. The top sign is a white octagon with a black border and the word "STOP" in black capital letters in the center. Below it is a white equilateral triangle with a black border and the text "4 - WAY" in black capital letters in the center.
55. If you have had several drinks in a short period of time you should:
- a) Turn your bright lights on when driving at night.
 - b) Drive 20 to 30 km/h (15-20 mph) slower than the speed limit.
 - c) Wait 1 hour for each drink before driving.
 - d) Drive with someone else in the vehicle to help guide you if necessary.
56. The amount of alcohol you can drink before becoming impaired:
- a) Is the same for everyone.
 - b) Increases when you gain extra fat.
 - c) Is related to the average (normal) body weight for your height.
 - d) Depends more on your mood and your weight.
57. If your vehicle pulls to one side when the brakes are applied you should:
- a) Rotate your tires.
 - b) Balance your wheels.
 - c) Have your brakes checked.
 - d) Put more air in the tires on that side.
58. In stopping you should use the clutch when:
- a) The vehicle is completely stopped.
 - b) The brakes do not work.
 - c) In neutral and stopped on a hill.
 - d) Slow speed places a strain on the engine.
59. In order to come to a smooth stop you should:
- a) Apply increasing pressure on the brake until you stop.
 - b) Maintain even pressure on the brake until you stop.
 - c) Gradually press harder on the brake, then ease up just before you stop.
 - d) Increase the pressure on the brake as you decrease the pressure on the gas pedal.
60. If you stop a manual transmission vehicle on a level road for more than a few minutes:
- a) Place the gears in neutral.
 - b) Depress the clutch without shifting.
 - c) Keep the clutch in and shift to low.
 - d) Keep the clutch part way down with the gear shift lever in low.

DRIVING KNOWLEDGE TEST

FORM B

Your Name: (Please Print) _____

INSTRUCTIONS: Please draw an "X" over the answer that you consider to be the most correct. The answer spaces are numbered the same as the items in the booklet. Mark one answer only for each question. (You may detach this answer sheet from the booklet.)

Example:

1. If you are driving on a two-way street and you hear the siren of an emergency vehicle, you must:
- a) Speed up and get out of the way.
 - b) Signal the driver of the vehicle to pass.
 - c) Stop immediately and then signal the driver to pass.
 - d) Pull to the right as far as possible and stop.

The correct answer is shown below:

1. a b c ~~d~~

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

Please Turn Over.....

16. a b c d

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

26. a b c d

27. a b c d

28. a b c d

29. a b c d

30. a b c d

31. a b c d

32. a b c d

33. a b c d

34. a b c d

35. a b c d

36. a b c d

37. a b c d

38. a b c d

39. a b c d

40. a b c d

41. a b c d

42. a b c d

43. a b c d

44. a b c d

45. a b c d

46. a b c d

47. a b c d

48. a b c d

49. a b c d

50. a b c d

51. a b c d

52. a b c d

53. a b c d

54. a b c d

55. a b c d

56. a b c d

57. a b c d

58. a b c d

59. a b c d

60. a b c d

Thank you.

1. At dawn or dusk, vehicles with lights on tend to:
 - a) Appear to be going faster than vehicles without lights.
 - b) Appear to be going slower than vehicles without lights.
 - c) Make vehicles without lights less visible than usual.
 - d) Distract your attention from vehicles in front of you.
2. When following trucks carrying inflammable cargo, or busses you should:
 - a) Turn your headlights on even if it is during the day.
 - b) Expect them to stop at railroad crossings.
 - c) Move over to the left lane rather than following them in the same lane.
 - d) Be prepared to pull onto the shoulder if they begin slowing down.
3. When pulling a trailer and preparing to make a right hand turn, you should:
 - a) Increase the distance from the curb.
 - b) Decrease the distance from the curb.
 - c) Move into the left lane.
 - d) Keep in the same lane position you would without the trailer.
4. You should check behind you for people and other vehicles:
 - a) Just after you start to back up.
 - b) Just before you begin to back up.
 - c) After you have backed onto the road.
 - d) Only when backing up to the left.
5. It is unsafe to coast in neutral because:
 - a) Your transmission may overheat and be damaged.
 - b) You lose power from your power steering and brakes.
 - c) The engine cannot act as a brake to slow you down.
 - d) The engine may stall and you will lose control of the vehicle.
6. The outside left mirror should be adjusted so that you:
 - a) Do not see any part of your vehicle when you are sitting in your normal driving position.
 - b) Can see part of the left side of your vehicle when you lean to the left.
 - c) Can see part of the left side of your vehicle when you are sitting in your normal driving position.
 - d) Can see the rear window of your vehicle.
7. When driving by oncoming traffic you should be especially alert for:
 - a) Flying stones and glare from headlights or reflected sun.
 - b) Wind gusts, road irregularities, and vehicles crossing the centre line.
 - c) Traffic entering from side roads and vehicles parked on the shoulder.
 - d) Stray animals and stopped school busses.
8. An oncoming vehicle is most likely to cross the centre line when:
 - a) It is signalling for a right turn.
 - b) You are in a no passing zone.
 - c) There is a large distance between each of the oncoming vehicles.
 - d) There is a slow moving or stopped vehicle in the oncoming lane.
9. If your brakes are wet after driving through deep water:
 - a) Pull onto the shoulder and put your hood up.
 - b) Speed up to allow the air to dry them.
 - c) Keep slight pressure on the brake while driving.
 - d) Brake very hard the next time you need to stop.
10. At hills and valleys in a freeway, most rear-end accidents are caused by:
 - a) Poor brakes.
 - b) Vehicles trying to pass.
 - c) Following too closely.
 - d) Slow-moving trucks.
11. If you want to turn left at an intersection and an oncoming vehicle is turning left:
 - a) Turn quickly so that you will not block traffic.
 - b) Wait until the oncoming vehicle completes its turn then make your turn.
 - c) Continue to the next intersection and make your turn there.
 - d) Pause and watch for traffic along side of the oncoming vehicle.
12. When coming to an intersection you should first look:
 - a) Left.
 - b) Right.
 - c) Behind you.
 - d) At your speedometer.
13. If when coming to an intersection you see another vehicle approaching from the opposite direction:
 - a) Speed up to get to the intersection first.
 - b) Stop until you know what the other driver is going to do.
 - c) Be prepared to stop if the other driver signals for a left turn.
 - d) Continue at the same speed, since you have the right-of-way.
14. Before turning left at an intersection you should:
 - a) Wait until traffic clears and you can complete the turn.
 - b) Pull halfway into the intersection to block traffic from the left.
 - c) Wait until the light turns yellow before making your turn.
 - d) Speed up to pull away from the vehicle behind you.
15. If the signal light changes from green to amber as you approach an intersection you should:
 - a) Stop, but if it cannot be made safely, proceed with caution.
 - b) Speed up to clear the intersection as quickly as possible.
 - c) Continue through the intersection at the same speed.
 - d) Sound horn to warn pedestrians and other drivers that you do not intend to stop.

16. When you come to an intersection where there are no traffic controls you should:
- a) Slow down and blow your horn.
 - b) Slow down so you can stop before the intersection.
 - c) Come to a stop before you come to a crosswalk.
 - d) Continue at the same speed and watch for traffic.
17. When a car is stopped to allow a pedestrian to cross the street at a marked pedestrian crosswalk you should:
- a) Pass the stopped car on the right.
 - b) Not pass any car stopped to allow a pedestrian to cross the street.
 - c) Pass the stopped car on the left.
 - d) Sound horn for the driver of the stopped car to drive on.
18. You should be most careful to watch out for hard-to-see pedestrians while driving:
- a) Past a line of parked vehicles.
 - b) On wet pavement.
 - c) During the day.
 - d) On a straight, multi-lane road.
19. When driving in an area where there are many pedestrians it is most important to:
- a) Put your headlights on so they can see you better.
 - b) Keep your speed down to 20 km/h (15 mph).
 - c) Watch for an indication that they will step into the road.
 - d) Stop at every intersection and proceed when safe.
20. A pedestrian must yield the right-of-way to a vehicle when:
- a) In a crosswalk where there are no traffic signals.
 - b) Crossing anywhere other than a crosswalk.
 - c) A vehicle is making a left turn at an intersection.
 - d) The light changes while the pedestrian is crossing at an intersection.
21. When you come to a bus stop:
- a) Watch for pedestrians crossing the street.
 - b) Clear the area quickly so you will not block the bus.
 - c) Avoid stopping and tying up traffic.
 - d) Come to a full stop and proceed when safe.
22. When driving in a city you should:
- a) Glance only briefly at attention getting events.
 - b) Leave one vehicle length or less between you and the vehicle ahead.
 - c) Speed up slightly when driving by parked vehicles.
 - d) Change lanes as often as necessary in order to keep up your speed.
23. If a cyclist puts his/her left arm straight out to the side it means:
- a) He/she intends to stop.
 - b) He/she intends to slow down.
 - c) He/she intends to turn right.
 - d) He/she intends to turn left.
24. The law states that you must not follow any fire engine travelling to a fire closer than:
- a) 15 meters (50 feet).
 - b) 30 meters (100 feet).
 - c) 90 meters (300 feet).
 - d) 150 meters (500 feet).
25. Driving faster than the posed speed limit is:
- a) Permitted only when passing another vehicle.
 - b) Never permitted.
 - c) Permitted when traffic is light.
 - d) Only permitted when other vehicles are going faster than the speed limit.
26. If your driver's license is lost or destroyed you are required to:
- a) Wait until you receive your renewal license.
 - b) Apply for a new license.
 - c) Apply for a duplicate license.
 - d) Notify the police.
27. To help a seriously injured person after an accident:
- a) Try to re-set any broken bones, and then call for help.
 - b) Rush him or her to the hospital.
 - c) Cover him or her and try to control any bleeding.
 - d) Move him or her to a warm place.
28. If the person to whom you have loaned your vehicle causes an accident because of negligence or misconduct:
- a) The driver is completely responsible for damages.
 - b) No one can be held responsible for the damages.
 - c) Both you and the driver may be held responsible for the damages.
 - d) You are not responsible for any costs beyond that covered by your insurance.
29. The correct order of operations when backing up is:
- a) Look to the rear, make sure the vehicle is stopped, shift into reverse.
 - b) Make sure the vehicle is stopped, look to the rear, shift into reverse.
 - c) Shift into reverse, make sure the vehicle is stopped, look to the rear.
 - d) Look to the rear, shift into reverse, make sure the vehicle is stopped.
30. Before making a turn you should:
- a) Use hand signals first and then mechanical signals.
 - b) Look to see if other vehicles will be in your way.
 - c) Always stop first.
 - d) Move slightly to the left when turning right, and slightly right when turning left.

31. If you decide to use a driveway when turning around, it is best to:
- Drive forward into the driveway and then turn while backing out.
 - Back into the driveway and then move forward into traffic.
 - Select a driveway that has vehicles parked on either side of it, at the curb.
 - Keep your door open when backing out of the driveway.
32. If while passing, it appears that you will not have time to complete the pass:
- Speed up quickly and cut in front of the vehicle you are passing.
 - Slow down and steer onto the left shoulder.
 - Continue as you are and signal the vehicle you are passing to slow down.
 - Slow down and return to the right lane behind the vehicle you were passing.
33. If when passing with an automatic shift vehicle, you need to quickly speed up:
- Press the gas pedal quickly to the floor.
 - Pump the gas pedal.
 - Shift into neutral and then back into drive.
 - Gradually put more pressure on the gas pedal.
34. When passing at high speeds most drivers:
- Drive too slow and are never able to complete the pass.
 - Drive too close to the left edge of the road.
 - Take too long in getting back into the right lane.
 - Take longer to complete the pass than they thought.
35. Before passing another vehicle you should first:
- Speed up as much as possible and put on your signal lights if you have to change lanes.
 - Get as close as possible to the vehicle you want to pass.
 - Signal to the vehicle that you want to pass.
 - Judge the distance available for passing and how fast you are approaching the other vehicle.
36. When you enter a freeway you should:
- Stay in the entrance lane until it ends.
 - Drive smoothly into the right hand lane.
 - Drive smoothly onto the road and quickly move into the middle lane.
 - Move directly over to the middle lane.
37. When entering a freeway behind several other vehicles it is most important to:
- Judge the location and speed of the vehicle in front of you.
 - Keep your eyes on the vehicles in back of you.
 - Stay as close as possible to the vehicles ahead of you.
 - Turn on your signal lights as soon as you are on the entrance.
38. The speed you travel on a freeway entrance should be determined by the:
- Number of vehicles behind you on the entrance.
 - Type of entrance and the speed of the vehicles around you.
 - Number of lanes on the entrance and the number of lanes on the freeway.
 - Speed limit on the freeway.
39. If you do not see a break in the freeway traffic while driving down the entrance:
- Watch the vehicles in front of you and check the freeway traffic with your mirrors.
 - Turn your head and keep your eyes on the freeway until you see a break in traffic.
 - Watch the vehicle in front of you on the entrance and enter the freeway when it does.
 - Slowly edge onto the freeway until a vehicle lets you enter.
40. As you come to a curve in the road:
- Check for posted speed limits to see if you should slow down.
 - Move to the outside of your lane to make the turn more easily.
 - Blow your horn to warn oncoming vehicles that are hidden by the curve.
 - Apply your brakes after you enter the curve.
41. When coming out of a skid you should apply your brakes only:
- If you have to come to a stop.
 - After you have been heading in the desired direction for several seconds.
 - After you have steering control of the vehicle.
 - If you are going slower than 15 km/h (10 mph).
42. If you start to skid on a wet or icy street you should:
- Steer in the direction of the skid.
 - Put the vehicle in neutral.
 - Begin to gently apply the brakes.
 - Decrease your speed and keep the wheels straight.
43. When freezing rain starts to fall, the first places to watch for ice on the road are:
- Exposed tops of hills.
 - Valleys or low spots.
 - Bridges and overpasses.
 - Underpass entrances and exits.
44. If you are driving in an area where there are streetcar tracks you should:
- Watch the tracks to keep your vehicle on a straight path.
 - Do not drive faster than 30 km/h (20mph).
 - Stay at least 3 meters (10 feet) from the tracks.
 - Avoid driving on top of the tracks.
45. You should be most careful when turning or stopping:
- Just before it starts to rain.
 - During the first half hour of rain.
 - After it has been raining all day.
 - A half hour after it stops raining.

46. When a blowout occurs you should:

- a) Let up on the accelerator and concentrate on steering.
- b) Accelerate and steer to the left.
- c) Accelerate and steer to the right.
- d) Let up on the accelerator and jam on the brake.

47. If you have a blowout while driving you should:

- a) Look for a safe place to drive off the road.
- b) Apply the brakes as soon as you notice the blowout.
- c) Keep going at the same speed until you can get off the road.
- d) Continue driving on the shoulder until you get to the next exit.

48. If the vehicle behind you is not slowing down after you have stopped:

- a) Keep your foot on the brake even if there are no vehicles in front of you.
- b) Lean forward against the steering wheel.
- c) Warn other passengers.
- d) Jump out of the vehicle.

49. If the wheels lock when you brake you should:

- a) Take your foot off the brake and keep it off.
- b) Keep your foot on the brake.
- c) Release the brake, then brake more lightly.
- d) Keep your foot on the brake and turn off the engine.

50. It is most important to turn the front wheels toward the curb:

- a) When parking facing downhill.
- b) When parking facing uphill.
- c) When parking on level pavement.
- d) At all times.

51. When driving at night:

- a) Follow more closely than during the daytime.
- b) Keep your high beams on if traffic is light.
- c) Look beyond your headlights for vehicles and people.
- d) Keep your eyes to the right of the road.

52. If bad weather makes it hard for you to see you should:

- a) Move closer to the car ahead.
- b) Increase your following distance.
- c) Drive in the lane closest to oncoming traffic.
- d) Turn your lights on high beam.

53. When driving through fog at night, you should use your:

- a) High beam headlights.
- b) Parking lights.
- c) Low beam headlights.
- d) 4-way flashers.

54. When putting objects in a vehicle you should:

- a) Place them on the dashboard or rear window shelf if possible.
- b) Not put them in the passenger area if they would stick out the window.
- c) Place very heavy objects on the rear seat of the vehicle.
- d) Keep sharp or dangerous objects in the front seat.

55. To prepare for a long trip you should:

- a) Drink several cups of coffee.
- b) Add extra air to your tires.
- c) Check your route on an up-to-date map.
- d) Put your best tires on the rear wheels.

56. The most effective devices for protecting passengers when in an accident are:

- a) Seat belts.
- b) Safety door latches.
- c) Padded instrument panels.
- d) Deep centre steering wheels.

57. When you see this sign you should:

- a) Increase the distance between your vehicle and the one ahead if the pavement is slippery or wet.
- b) Be prepared to change directions quickly.
- c) Slow down because there is a winding or curved road ahead.
- d) Be prepared to stop because there is an accident ahead.



58. Marijuana should not be taken when driving because:

- a) It is illegal.
- b) It can reduce your colour vision.
- c) It can impair your judgement.
- d) It can make you tired.

59. When in high gear, slow, smooth stops may be made by using the:

- a) Brake and clutch at the same time.
- b) Brake only.
- c) Clutch first and later the brake.
- d) Brake first and later the clutch.

60. If the vehicle in front of you stops and you have to stop behind it, you should generally:

- a) Stop far enough in back of it so that you can change lanes if necessary.
- b) Put on your emergency flashers if you come to a stop on the road.
- c) Stop a safe distance away and then move as close to the vehicle in front as possible.
- d) Sound your horn.

